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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,338	12/19/2001	David K. Platner	60130-1230/01MRA0409	3427

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CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

EXAMINER

SWENSON, BRIAN L

ART UNIT	PAPER NUMBER
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3618

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,338

Applicant(s)

PLATNER ET AL.

Examiner

Brian Swenson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Acknowledgement is made of the amendment filed on 13 November 2003 and placed in the file as paper number 5 where:

- a. Claims 1, 8 and 12 have been amended;
- b. Claims 13-22 added; and
- c. Claims 1-22 pending in this office action.

Response to Amendment

2. Applicant's arguments, see page 6 of the amendment filed 13 November 2003, with respect to the rejections of claims 1 and 5 under 35 U.S.C. 102(b) (Roske) and claims 1-12 under 35 U.S.C. 103(a) (Armington in view of Stedman) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lutz and Cilley in view Armington follows below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,829,542 issued to Lutz.

Lutz, in Figures 1-8B and respective portions of the specification teaches of an electric drive assembly including a suspension system (9) mounted to a vehicle frame

(1); an axle mounted to the suspension system, the axle defining a first axis (see Figure 1); a wheel hub (11) mounted to the vehicle axle, the wheel hub rotatable about the first axis; a planetary gear set (transmission 15; Col. 3, lines 37-38) mounted to the axle to drive the wheel hub; an electric motor (13) mounted to the vehicle frame (1; Figure 1; Col. 8, lines 1-14); the electric motor mounted substantially parallel to the vehicle axle (Col. 8, lines 35-37); and a drive shaft (25) extending from the electric motor to drive the planetary gear set.

In regards to claim 5, Lutz shows in Figure 2 the motor's (13) output shaft (25) is mounted offset of the first axis.

In regards to claims 21 and 22, Lutz teaches of a suspension system (9) mounted to a vehicle frame (1), the suspension system comprising a sprung mass (27); an axle (19) mounted to the suspension system, the axle defining a first axis and comprising an un-sprung mass; an electric motor (13) mounted to the sprung mass; a wheel hub (11) mounted to the vehicle axle; and a drive shaft (25) extending from the electric motor to drive the wheel hub; the drive shaft is non-parallel to the first axis (Figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 1,251,749 issued to Cilley in view of U.S. Patent No. 2,027,218 issued to Armington.

Cilley in Figures 1-8 and respective portions of the specification teaches of an electric wheel drive including: a suspension system (18) mounted to a vehicle frame (10,11,12) comprising a sprung mass; an axle (15) comprising an un-sprung mass mounted to the suspension system (Page 1, Lines 75-84), the axle defining a first axis (Figure 1); a first and second wheel hub (16) mounted to opposed end of the axle (Figure 1), the first and second hub rotatable about the first axis; a first and second gear set (see detail in Figure 4) mounted to the axle to drive the first and second wheel hub, the first and second gear set having a ring gear (29); a first and second electric motor (24) mounted to the vehicle frame (Page 2, Lines 72-73) as a sprung mass, the first and second electric motor mounted substantially parallel to the vehicle axle (Figure 1; Page 2, lines 43-44); a first and second input pinion (28) engageable with the diameter of the first and second ring gear (Figures 1 and 4), the first and second pinion defining an axis substantially parallel to the first and second axis; a first and second drive shaft (26 and 27) extending from the first and second electric motor to drive the first input pinion.

Cilley teaches of a gear set, but does not teach of a planetary gear train and does not teach of the input pinions engaging the outer diameter's teeth of the ring gears.

The use of a planetary gear set is old and well known in the vehicle art. Armington, discloses an electric vehicle drive including: a vehicle frame (34); an axle (8)

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defining a first axis; a wheel hub mounted to the vehicle axle, the wheel hub rotatable about the first axis; a planetary gear set (Col. 2, lines 14-16) mounted to the axle to drive the wheel hub; an electric motor (29; Figure 1) a drive shaft (shown in Figure 1 connected to pinion 28) extending from the electric motor to drive an outer diameter tooth set about an outer diameter of a ring gear (19; Figure 1; Col. 2, lines 32-33) with a meshing input pinion (21) that defines an axis parallel to the first axis. Armington teaches of plurality of planet gears (18) rotatably mounted to a planet carrier (9), the planet carrier driving an output shaft to the wheel hub. Armington teaches of the planetary gear set including a stationary sun gear (17). The sun gear is driven by shaft 8, which is driven by motor (1), Armington teaches that the vehicle can be operated without motor (1; Col. 3, lines 42-43) on, which would fix the sun gear (17) to be stationary.

It would have been obvious to one having ordinary skill in the art at the time of invention to use a planetary gear set, as taught by Armington, as the gear set in the invention taught by Cilley and it would further have been obvious to one having ordinary skill in the art at the time of invention to use the input pinion (28) taught by Cilley to drive the outer diameter's teeth. One would be motivated to use a well known planetary gear set, as taught by Armington, to achieve a desired speed reduction between the motor and wheels in the invention taught by Cilley.

In regards to claim 10 Cilley does not show the motors mounted above the axle. Armington shows in Figure 2 the motor's (29) drive shaft axis and a substantial portion of the motor is mounted above the vehicle's axle, shown collinear with element (9) in

Figure 2. It would have been obvious to one having ordinary skill in the art at the time of invention to locate the motors taught by Cilley substantially above the axle, in the manner taught by Armington. One would be motivated to locate the motors substantially above the axle to prevent damage to the motors by obstacles extending upward from the ground.

In regards to claims 15 and 22, Cilley discloses the drive shaft (26) accommodates angles (Page 2, lines 69-70), meaning the drive shaft is capable of being non-parallel to the first axis.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,947,855 issued to Weiss teaches of an electric drive system with an electric motor driving each driven wheel, the electric motor's output shaft is mounted parallel to a drive axle.

U.S. Patent No. 5,322,141 issued to Brunner et al. teaches of a electric wheel drive using a planetary gear set.

U.S. Patent No. 3,439,767 issued to Lynes et al. teach of a vehicle suspension and drive arrangement.

U.S. Patent No. 3,420,327 issued to Nallinger et al. teach of a drive shaft mounted at an angle relative to an axis passing through the drive wheels.

U.S. Patent No. 1,199,925 issued to Queeney teaches of an electric drive assembly mounted offset a drive axle.

U.S. Patent No. 6,71,856 issued to Darley teaches of a vehicle with two propulsion units that rotate pinions to drive the outer teeth of a gear located next to the wheel hubs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Swenson whose telephone number is (703) 305-8163. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Johnson can be reached on (703) 308-0885. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Brian Swenson
Examiner
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BS 4/26/04
bls


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